

IN THE CLAIMS

Please amend the claims as follows:

1. (Currently Amended) An image processing apparatus for generating graphics data according to picture description instructions based on original image data of full color, comprising:

a chromatic tester configured to determine whether a pixel of the original image data is chromatic or achromatic;

an obtainer configured to determine whether an image property of the pixel indicates the pixel is characteristic of a photograph, when the pixel is determined as achromatic by the chromatic tester;

a color converter configured to convert the pixel into CMYK data for printing according to one of a plurality of predetermined converting conditions; and

a converting condition designator configured to designate (1) a first one of the predetermined converting conditions for the pixel determined as chromatic, (2) a second one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is not characteristic of a photograph, the second one of the predetermined converting conditions being different from the first one of the predetermined converting conditions, and (3) the first one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is characteristic of a photograph.

2. (Original) The image processing apparatus according to Claim 1, wherein said chromatic tester determines the pixel as achromatic when values of RGB color components are identical to each other.

3. (Original) The image processing apparatus according to Claim 1, wherein said chromatic tester determines the pixel as achromatic when differences in data value among RGB components of the pixel fall within respective predetermined threshold values.

4. (Original) The image processing apparatus according to Claim 1, wherein the predetermined condition used for the pixel determined as achromatic is any one of a K monochrome converting condition using a black color and a normal converting condition using cyan, magenta, yellow, and black colors.

5. (Original) The image forming apparatus according to Claim 1, wherein said obtainer checks pixels in a predetermined area in the original image data to obtain the image property of the pixel.

6. (Previously Presented) The image forming apparatus according to Claim 1, wherein the image property of the pixel is either one of a first image property of including any chromatic pixel in the pixels in the predetermined area and a second property of not including any chromatic pixel in the pixels in the predetermined area, and said converting condition designator designates a K monochrome converting condition to the pixel having the first image property.

7. (Original) The image forming apparatus according to Claim 1, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding the pixel in a main scanning direction.

8. (Original) The image forming apparatus according to Claim 1, wherein the predetermined area comprises a predetermined number of sequential pixels immediately succeeding the pixel in a main scanning direction.

9. (Original) The image forming apparatus according to Claim 1, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding and succeeding the pixel in a main scanning direction.

10. (Original) The image forming apparatus according to Claim 1, wherein the predetermined area is formed with an m-by-n matrix surrounding the pixel, m and n being positive integer values greater than zero.

11. (Currently Amended) An image processing apparatus for generating graphics data according to picture description instructions based on original image data of full color, comprising:

chromatic checking means for checking to determine whether a pixel of the original image data is chromatic or achromatic;

obtaining means for determining whether an image property of the pixel indicates the pixel is characteristic of a photograph, when the pixel is determined as achromatic by the chromatic checking means;

color converting means for converting the pixel into CMYK data for printing according to one of a plurality of predetermined converting conditions; and

converting condition designating means for designating (1) a first one of the predetermined converting conditions for the pixel determined as chromatic, (2) a second one of the predetermined converting conditions when the pixel is determined as achromatic and

the image property of the pixel indicates the pixel is not characteristic of a photograph, the second one of the predetermined converting conditions being different from the first one of the predetermined converting conditions, and (3) the first one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is characteristic of a photograph.

12. (Original) The image processing apparatus according to Claim 11, wherein said chromatic checking means determines the pixel as achromatic when values of RGB color components are identical to each other.

13. (Original) The image processing apparatus according to Claim 11, wherein said chromatic checking means determines the pixel as achromatic when differences in data value among RGB components of the pixel fall within respective predetermined threshold values.

14. (Original) The image processing apparatus according to Claim 11, wherein the predetermined condition applied to the pixel determined as achromatic is any one of a K monochrome converting condition using a black color and a normal converting condition using cyan, magenta, yellow, and black colors.

15. (Original) The image forming apparatus according to Claim 11, wherein said obtaining means checks pixels in a predetermined area in the original image data to obtain the image property of the pixel.

16. (Previously Presented) The image forming apparatus according to Claim 11, wherein the image property of the pixel is either one of a first image property of including

any chromatic pixel in the pixels in the predetermined area and a second property of not including any chromatic pixel in the pixels in the predetermined area, and said converting condition designating means designates a K monochrome converting condition to the pixel having the first image property.

17. (Original) The image forming apparatus according to Claim 11, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding the pixel in a main scanning direction.

18. (Original) The image forming apparatus according to Claim 11, wherein in the predetermined area comprises a predetermined number of sequential pixels immediately succeeding the pixel in a main scanning direction.

19. (Original) The image forming apparatus according to Claim 11, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding and succeeding the pixel in a main scanning direction.

20. (Original) The image forming apparatus according to Claim 11, wherein the predetermined area is formed with an m-by-n matrix surrounding the pixel, m and n being positive integer values greater than zero.

21. (Currently Amended) A graphics data processing method for generating graphics data according to picture description instructions based on original image data of full color, the graphics data processing method comprising the steps of:

determining whether a pixel of the original image data is chromatic or achromatic;

determining whether an image property of the pixel indicates the pixel is characteristic of a photograph, when the pixel is determined as achromatic;

designating (1) a first one of a plurality of predetermined converting conditions for the pixel determined as chromatic, (2) a second one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is not characteristic of a photograph, the second one of the predetermined converting conditions being different from the first one of the predetermined converting conditions, and (3) the first one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is characteristic of a photograph; and

converting the pixel into CMYK data according to the designated predetermined converting condition.

22. (Original) The graphics data processing method according to Claim 21, wherein said chromatic checking step determines the pixel as achromatic when values of RGB color components are identical to each other.

23. (Original) The graphics data processing method according to Claim 21, wherein said chromatic checking step determines the pixel as achromatic when differences in data value among RGB components of the pixel fall within respective predetermined threshold values.

24. (Original) The graphics data processing method according to Claim 21, wherein the predetermined condition applied to the pixel determined as achromatic is any one of a K

monochrome converting condition using a black color and a normal converting condition using cyan, magenta, yellow, and black colors.

25. (Original) The graphics data processing method according to Claim 21, wherein said obtaining step checks pixels in a predetermined area in the original image data to obtain the image property of the pixel.

26. (Previously Presented) The graphics data processing method according to Claim 21, wherein the image property of the pixel is either one of a first image property of including any chromatic pixel in the pixels in the predetermined area and a second property of not including any chromatic pixel in the pixels in the predetermined area, and said designating step designates a K monochrome converting condition to the pixel having the first image property.

27. (Original) The graphics data processing method according to Claim 21, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding the pixel in a main scanning direction.

28. (Original) The graphics data processing method according to Claim 21, wherein the predetermined area comprises a predetermined number of sequential pixels immediately succeeding the pixel in a main scanning direction.

29. (Original) The graphics data processing method according to Claim 21, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding and succeeding the pixel in a main scanning direction.

30. (Original) The graphics data processing method according to Claim 21, wherein the predetermined area is formed with an m-by-n matrix surrounding the pixel, m and n being positive integer values greater than zero.

31-40. (Canceled)

41. (Currently Amended) A computer readable medium storing computer instructions for causing a computer to perform an image processing method, said method comprising:

chromatic checking to determine whether a pixel of the original image data is chromatic or achromatic;

determining whether an image property of the pixel indicates the pixel is characteristic of a photograph, when the pixel is determined as achromatic;

designating (1) a first one of a plurality of predetermined converting conditions for the pixel determined as chromatic, (2) a second one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is not characteristic of a photograph, the second one of the predetermined converting conditions being different from the first one of the predetermined converting conditions, and (3) the first one of the predetermined converting conditions when the pixel is determined as achromatic and the image property of the pixel indicates the pixel is characteristic of a photograph; and

converting the pixel into CMYK data for printing according to the designated predetermined converting conditions.

42. (Original) The storage medium according to claim 41, wherein said chromatic checking step determines the pixel as achromatic when values of RGB color components are identical to each other.

43. (Original) The storage medium according to claim 41, wherein said chromatic checking step determines the pixel as achromatic when differences in data value among RGB components of the pixel fall within respective predetermined threshold values.

44. (Original) The storage medium according to claim 41, wherein the predetermined condition applied to the pixel determined as achromatic is any one of a K monochrome converting condition using a black color and a normal converting condition using cyan, magenta, yellow, and black colors.

45. (Original) The storage medium according to claim 41, wherein said obtaining step checks pixels in a predetermined area in the original image data to obtain the image property of the pixel.

46. (Previously Presented) The storage medium according to claim 41, wherein the image property of the pixel is either one of a first image property of including any chromatic pixel in the pixels in the predetermined area and a second property of not including any chromatic pixel in the pixels in the predetermined area, and said designating step designates a K monochrome converting condition to the pixel having the first image property.

47. (Original) The storage medium according to claim 41, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding the pixel in a main scanning direction.

48. (Original) The storage medium according to claim 41, wherein the predetermined area comprises a predetermined number of sequential pixels immediately succeeding the pixel in a main scanning direction.

49. (Original) The storage medium according to claim 41, wherein the predetermined area comprises a predetermined number of sequential pixels immediately preceding and succeeding the pixel in a main scanning direction.

50. (Original) The storage medium according to claim 41, wherein the predetermined area is formed with an m-by-n matrix surrounding the pixel, m and n being positive integer values greater than zero.

51. (Withdrawn) A printing apparatus comprising:
a printer engine; and
a printer controller storing a computer program product for carrying out an image processing method, the method comprising the steps of:
chromatic checking to determine whether a pixel of the original image data is chromatic or achromatic;
obtaining an image property of the pixel;

designating one of a plurality of predetermined converting conditions for the pixel determined as achromatic in said chromatic checking step based on the image property obtained in said obtaining step; and

converting the pixel into CMYK data for printing according to the designated one of the plurality of predetermined converting conditions.

52. (Withdrawn) A hosting apparatus, comprising:

a computer; and

a printer driver installed in said computer and storing a computer program product for carrying out an image processing method, the method comprising the steps of:

chromatic checking to determine whether a pixel of the original image data is chromatic or achromatic;

obtaining an image property of the pixel;

designating one of a plurality of predetermined converting conditions for the pixel determined as achromatic in said chromatic checking step based on the image property obtained in said obtaining step; and

converting the pixel into CMYK data for printing according to the designated one of the plurality of predetermined converting conditions.

53. (Previously Presented) The image processing apparatus of Claim 1, wherein the obtainer is configured to obtain the image property of the pixel by determining whether the pixel is part of a photographic image.

54. (Previously Presented) The image processing apparatus of claim 1, further comprising:

means for expanding text or graphics data into bitmap data based on color instruction data prior to testing the bitmap data using the chromatic tester.

55. (Previously Presented) The image processing apparatus of claim 1, further comprising:

means for determining the image property of the pixel based on user input to the image processing apparatus.

56. (Previously Presented) The image processing apparatus of claim 1, further comprising:

means for determining the image property of the pixel by examining area information of an object specified in the picture description instructions.